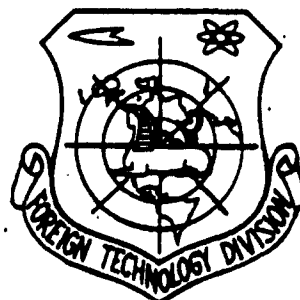


FOREIGN TECHNOLOGY DIVISION



CHEMICAL NEWS  
(Selected Articles)



DTIC  
ELECTE  
MAY 09 1984  
S D E

Approved for public release;  
distribution unlimited.

DTIC FILE COPY

AD-A140 887

## EDITED TRANSLATION

FTD-ID(RS)T-0348-84

13 April 1984

MICROFICHE NR: FTD-84-C-000394

CHEMICAL NEWS (Selected Articles)

English pages: 6

Source: Wiadomości Chemiczne, Vol. 29, Nr. 12, December 1975,  
pp. 855-857; 857-858

Country of origin: Poland

Translated by: LEO KANNER ASSOCIATES  
F33657-81-D-0264

Requester: FTD/TQTR

Approved for public release; distribution unlimited.

THIS TRANSLATION IS A RENDITION OF THE ORIGINAL FOREIGN TEXT WITHOUT ANY ANALYTICAL OR EDITORIAL COMMENT. STATEMENTS OR THEORIES ADVOCATED OR IMPLIED ARE THOSE OF THE SOURCE AND DO NOT NECESSARILY REFLECT THE POSITION OR OPINION OF THE FOREIGN TECHNOLOGY DIVISION.

PREPARED BY:

TRANSLATION DIVISION  
FOREIGN TECHNOLOGY DIVISION  
WP.AFB, OHIO.

## Table of Contents

Graphics Disclaimer .....	ii
The International Conference on Thermostabile Polymers in Baranow and Zabrze, June 8-13, 1975, by Z. Urbanski .....	1
The First National Stereochemical Symposium, Jaszowiec, May 8-10 1975, by Marek Chmielewski .....	4

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Avail and/or	
Dist Special	
A-1	



#### GRAPHICS DISCLAIMER

All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

## A CHRONICAL OF SCIENTIFIC LIFE

The international conference on thermostabile polymers in Baranow and Zabrze, June 8-13, 1975.

by Z. Urbanski

It is a scientific fact that one of the latest fields to be developed in Poland is research work in the area of synthetic polymers. This is the result, despite the years of negligence during the interwar period, of the many years of effort on the part of Prof. Kazimierz Smolenski and Engineer W. Szukiewicz to master the production of butadiene rubber and those of Engineer R. Rabka (later a professor at the Wroclaw Polytechnical University) in the field of coumarone resins. Consequently, we must note with great regard several international conferences dedicated to synthetic polymers, which were held in June of this year. One of them, in which the author of this note took part, was organized by the Polymer Institute of the Polish Academy of Sciences in Zabrze in cooperation with the Silesian Polytechnical University in Glivice and the Polytechnical University in Rzeszow, which was dedicated to thermostabile polymers. It was held in Baranow and Zabrze between June 8 and 13, 1975.

From its side the Center for Molecular and Macromolecular Research in Lodz organized a series of conferences with an international character.

Hence, on June 3 and 4 the Second International Symposium on Polymer Compounds was held in Lodz within the framework of the cooperation of the Polish Academy of Sciences with the academies of the socialist nations. Later, on June 5 and 6 two meetings were held on The Morphology of Polymers and Polymer Compounds in which foreign guests participated.

The Center in Lodz organized a conference which was elevated to the rank of an IUPAC conference held on June 23 to 25 in Warsaw. In the

official nomenclature of the IUPAC this was the First Symposium Dedicated to Polymers Created By the Establishment of Heterocyclical Rings.

All of these events were, of course, great scientific and organizational successes. The high level of the reports, the animated discussion in the meeting halls and in the lobbies were the best proofs of this. These facts have made us optimistic because two important scientific centers of the Polish Academy of Sciences, which work with polymers, have appeared in Poland. These centers cooperate with all the institutions of higher education and supplement the work of the institutes belonging to the Ministry of Chemical Industries.

The conference in Baranow and Zabrze attracted around 60 participants, of which 18 were foreign. Countries represented included Bulgaria, Czechoslovakia, Finland, Holland, the United States, Hungary and the Soviet Union. The largest group was from the Soviet Union (4 participants) and the GDR (5 participants).

The most famous chemists figured among the list of foreign participants: D.O. Hummel (BDR), W.W. Korszak (the Soviet Union), van Krevelen (Holland), J.K. Stille and M. Szwarc (the United States).

The theme of conference in Baranow and Zabrze was a reflection of one of the directions nurtured by chemists occupied with the synthesis of polymers. It dealt with the quest for polymers resistant to high temperatures. It is known that the most diffuse and highly regarded synthetic polymers, such as perlon, nylon, terylen, polyacrylonitryl and polypropylene, are sensitive to high temperatures; the fibers of these polymers undergo fusion at temperatures above 140°C and this fact limits their use in the production of clothing and for technical products, despite their great merits at room temperatures or ones slightly higher.

Another concept, chemical purity, was discussed in a series of reports in Baranow and Zabrze. This depends on the inclusion of aromatic or unaromatic rings in chains of averaged sized polymers. Hence, J.K. Stille (professor at the University of Iowa, Iowa City) discussed the development of polymers, which contain heterocyclical

rings. Two other reports discussed similar chemical properties: H.H. Hoerhold (docent at the University of Jena, GDR) discussed polyxylidenes, and M. Szwarc (professor at SUNY, Syracuse) discussed polyparaxylenes.

H. Raubach (The Organic Chemistry Institute of the Academy of Sciences in Berlin, GDR) presented a paper on the development and properties of polyphenylochinoyalene. W.W. Korszak (a corresponding member of the USSR Academy of Sciences, Institute for Elementoorganic Compounds, Moscow) gave a genral report on the relation between the structure and thermostability of polymers.

Z. Jedlinski (The Polymer Institute of the Polish Academy of Sciences, Zabrze and the Silesian Polytechnical University, Gliwice) presented a paper on polymers in which the factors most contributing to thermostability were naphtalene rings built into the polymer chains.

The second part of the conference in Baranow was dedicated to a discussion of the properties of thermostabile polymers. Hence, D.O. Hummel (professor of the Cologne University, BDR) presented his research on the pyrolysis of such polymers with the use of a mass spectrograph. D.W. van Krevelen (the AKZO Research Institute, Arnhem, Holland) discussed the relation between the chemical structure of polymers and their combustibility. J.J. Lindberg (professor at the University of Helsinki) discussed his research on the thermostability of polymers, obtained from lignin.

Besides the already mentioned reports, presented at the request of the organizers, there were "free discussions" in which several other scientists took part. Hence, P. Penczek (docent of the Chemical Industry Institute, Zholiborz) presented his research on polymers with built-in units of maleic anhydride, and several famous lecturers, such as W.W. Korszak and M. Szwarc, gave short reports on themes not covered by the main speakers.

This part of the conference, which took place in Zabrze, was inaugurated by N. Szwarc's extremely interesting talk on the study of flexibility of polymer chains using the ESR method.

It must be stressed that the role of Prof. M. Szwarc in the conference was a great attraction, especially due to his fame. Michal Szwarc was born in Bedzina in 1909 and graduated from the Chemical Division of the Warsaw Polytechnical University in 1932. He

was later the assistant of S. Kalinowski, a physicist known for his research on Earth magnetism, the founder of the observatory in Shwidrz. In 1935 he emigrated to Palestine. There he received his doctorate at the University of Jerusalem, where he worked as a scientist until 1945. In that year he transferred to Manchester (in England) and performed research in the field of physical chemistry. There, he again earned a doctorate (Ph.D) in 1947 and his D. Sc. in 1949. He received the degree of D. Sc. for his work on the energy of chemical bonds. In 1952 he became a professor of physical chemistry and polymers at the State University of New York in Syracuse. He became a fellow of the Royal Society in London in 1966.

Prof. Szwarc is widely known for his work on the reactivity of free radicals, photochemistry, anion polymerization, electron transfer and anion radicals. He has received many citations and awards for this work, for example an international award in 1972 for his work on polymers.

We should also mention several reports given in Zabrze by scientists of the Polymer Institute of the Polish Academy of Sciences, in which were presented the results of work on polymers containing built-in heterocycles, such as 1,3-dioxin and 1,3-dioxolan (the reports of Dr. J. Mashlinski-Sole and Mgr. M. Matlengiewicz). There were also several reports: about NMR polymers (Mgr. A. Dworak), about the use of polymers in gas chromatography (Dr. P. Szewczyk and Mgr. R. Tymczynski). We should also mention the polymer school of Z. Jelinski in Poland.

The First National Stereochemical Symposium, Jaszowiec, May 8-10 1975

by Marek Chmielewski

The First National Stereochemical Symposium, organized by the stereochemistry section of the Polish Chemical Association, was held



on May 8 to 10, 1975 in Jaszowiec. Around 170 participants representing the main university centers and research institutes of the Polish Academy of Sciences took part in the symposium. The program included plenary reports and a session of scientific communiques, presented by the symposium's participants. On the first day after the participants were welcomed by the president of the Stereochemistry Section of the PTCh, Prof. Dr. Aleksander Zamojski, Prof. Dr. J. Michalski (the Center for Molecular and Macromolecular Research in Lodz) presented a report entitled, "The Stereochemical Cycles in the Chemistry of Phosphorus. Prof. Michalski discussed the research performed in the Lodz center on stereochemical cycles connected with nucleophilic bases for the four bond phosphorous atom. In the afternoon session Prof. J.G. Buchanan (Heriot-Watt University, Edinburgh, Great Britain) in his report, "The Steric Course of Displacement Reactions at C-4 of Oldopyranose Derivates," presented the results of his work on the reactions of the nucleophilic changes for C-4 carbon in pyranoid derived simple sugars. Prof. Buchanan led an interesting discussion on the various mechanisms of the contraction of pyranoid ring into a furane one, observed in the studied reactions. The second day, in the morning, Prof. K. Blahy (The Institute of Organic Chemistry and Biochemistry of the Czechoslovak Academy of Sciences, Prague Czechoslovakia) presented a paper entitled, "The Stereochemistry of Compounds with Ring Amide Groups," which concerned research on the relationship between spectroscopy and the geometric parameters in systems with amide ring groups. The mentioned compounds are important as model systems in studies on the structure of proteins, peptides and antibiotics. In the afternoon Prof. W.A. Szarek (Queen's University, Kingston, Canada) in his paper, "A Conformational Analysis of Six-Membered Heterocycles Containing Oxygen and/or Sulfur," dealt with his research on the conformation of six-member heterocyclical compounds. The speaker discussed the size of the conformation effects, and included the anomeric effect in the systems based on 1,4-dioxans, 1,4-oxatians and 1,4-dithions. In the last report, "The Conformation of

Cation-Complexing Cyclic Ethers, Professor J. Dale (the University of Oslo, Blindern, Norway) discussed the problems connected with the study of the conformation of complex and free multiring cyclical ethers. The diversity of the spectroscopic methods used in solving the reported problems deserves attention.

60 communiques were read at the symposium which surveyed the work presently performed in Poland treating the problems of the stereochemistry of organic compounds. The communiques were given in two sections. Section A dealt with the problems of the reaction's spatial course and Section B, the stereochemistry of the structure of organic compounds. In both sections a series of interesting communiques on the theme of the stereochemistry of natural compounds, conformational questions and asymmetrical synthesis was presented. In Section B attention was turned to the communique of the Gdansk center on the theme of the X-ray establishment of the structure of organic particles.

A meeting of the participants was held after the symposium's program in which Prof. J. Dale, who presided over the Stereochemistry Conference in Buergerstock in 1975, discussed in an interesting way the organization and course of this important stereochemistry meeting in Europe.

The number and diversity of the papers presented at the symposium was manifested in an interesting way in the large number of participants and the animated discussions demonstrated that the meeting had met the task of acquainting the participants with the work in the field of stereochemistry presently performed in Poland. All of the colleagues expressed the view that stereochemistry symposia should be arranged in the future.